

### 3.0 NESLAB RTE-740 Heater/Chiller Limits Setup

### *Operational Guidance*

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This procedure is applicable to the initial setup of the thermal limits on the NESLAB RTE-740 heater/chiller unit. Because the NESLAB is capable of temperatures over 200C, and because of the modest flash point of propylene glycol (~100C) it is necessary to ensure that a software error could not cause the NESLAB to overheat and start a fire.

In practice, we will restrict our use of glycol as a heater/chiller fluid to Phase II when we will be using the cooling capabilities to facilitate the CF3I distillation. Due to time constraints, we will likely not implement limits during the Phase I setup, but will instead use only distilled water in the NESLAB bath.

From Manufacturer's Instructions: Setting the high temperature cutout:

#### **Adjustable High Temperature Cutout**

To protect your application, the adjustable High Temperature Cutout ensures the heater will not exceed temperatures that can cause serious damage to your unit. A single temperature sensor is located in the bath fluid. A High Temperature fault occurs when the temperature of the sensor exceeds the set temperature limit. The safety has a range of 0°C to 230±20°C.

In the event of a fault the unit will shut down and the controller will display **HtC**. The cause of the fault must be identified and corrected before the unit can be manually restarted.

The cutout is not preset and must be adjusted during initial installation. To set the cutout, locate the small black adjustment dial on the rear of the controller. Turn the dial fully clockwise and turn the power switch off then back on.

Start the unit. Adjust the setpoint for a few degrees higher than the highest desired fluid temperature and allow the bath to stabilize at the temperature setpoint. Turn the dial counterclockwise until you hear a click and the unit shuts down.

Before you can restart the bath it has to cool down a few degrees. Then, without moving the adjustment dial, turn the power switch off then back on.

**NOTE:** We recommend rechecking operation if the unit is moved.

To use this procedure for protection from the glycol flash point, it would in any case be necessary to start with water, set the high temperature cut-out, and then add the glycol to the system. We will do that in Phase II.